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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MORRISON, THOMAS A

ART UNIT	PAPER NUMBER
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3653

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/715,517

Applicant(s)

AMAMOTO, HIDEKAZU

Examiner

Thomas A. Morrison

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 18-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/19/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species I (Figs. 1-18), directed to claims 1-17, in the reply filed on August 25, 2005 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the elastic force" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the uppermost sheet" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the structure or structural relationship between the restraining mechanism and the elastic support member, that allows the elastic support member to be restrained in accordance with the

stacking amount of the sheets so that the position of the uppermost sheet of the stack is held at a substantial constant.

Moreover, there is insufficient structure or structural relationships between the claimed elements in claim 1, to understand how the restraining member moves along a straight locus, as claimed.

Also, it is unclear what is meant by the recited "a substantial constant" in claim 1.

Regarding claim 2, it is unclear what is meant by the recited "a sheet feeding member that configures part of the sheet feeding unit".

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the structure that causes the restraining member to simultaneously drive both driven portions when moving.

Regarding claim 6, it is unclear what is meant by the recited "substantially intermediate portion".

Claim 7 recites the limitation "the pressure angle" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "the driven portions" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "the rotation force" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "the driven portions" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "the locus of movement" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "the module" in line 12. There is insufficient antecedent basis for this limitation in the claim.

Claims 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the structure or structural relationship between the claimed elements that allows the coupling of the one-way clutch to be cut when the elastic support member is lowered. The above indefiniteness problems are merely exemplary. Applicant should review the claims and make the language consistent throughout the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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3. Claims 1-6 and 8-9, 11 and 17, as best understood, are rejected under 35 U.S.C. 102(a) as being anticipated by Japanese Publication No. 2003-182861 (cited in applicant's IDS of 11/19/03).

First, rejections of claims 1-6, 8, 11 and 17 are outlined with respect to the embodiment shown in Figs. 11-12.

Regarding claim 1, Figs. 11-12 show a sheet feeding device including

a sheet tray (41) on which sheets are stacked;

an elastic support member (42) that lifts up and supports, with the elastic force of an elastic member (43), the stack of sheets stacked on the sheet tray (41);

a sheet feeding unit (48 and 49) that successively feeds, beginning with the uppermost sheet, the stack of sheets lifted up by the elastic support member (42);

a following movable member (46) which is disposed so as to contact the uppermost sheet of the stack of sheets stacked on the sheet tray (41) and which follows and moves in accordance with the change in the stacking amount of the sheets;

a restraining mechanism (including 86, 87 and 63) that restrains the elastic support member (42) in accordance with the stacking amount of the sheets so that the position of the uppermost sheet of the stack of sheets stacked on the sheet tray is held at a substantial constant, the restraining mechanism (including 86, 87 and 63) including an engagement member (63) that moves together with the elastic support member (42) and a restraining member (87) that restrains the movement of the engagement member (63) ; and

a release mechanism (including 51a) that interlocks with the movement of the following movable member (46) to release the restrained state resulting from the restraining mechanism (including 86, 87 and 63);

wherein the restraining member (87) moves along a straight locus at least in the vicinity of an engaging portion between the engagement member (63) and the restraining member (87) so as to engage with and disengage from the engagement member (63).

Regarding claim 2, Fig. 12 shows that the following movable member (46) comprises a sheet feeding member (46) that configures part of the sheet feeding unit and is disposed so as to contact the uppermost sheet of the stack of sheets stacked on the sheet tray (41).

Regarding claim 3, Fig. 12 shows that the following movable member (46) comprises a rotating body that is rotatable.

Regarding claim 4, Figs. 11-12 show that the engagement member (63) comprises a gear in which teeth are formed at least on part of a peripheral surface thereof; and

the restraining member (87) comprises a rack on which at least one tooth that meshes with the gear is formed.

Regarding claim 5, Fig. 12 shows that the restraining member (87) comprises driven portions (87b and horizontal portion of 91) at at least two places and simultaneously drives both driven portions when moving.

Regarding claim 6, Fig. 12 shows an urging member (90) disposed at the restraining member (87);

wherein the urging member (90) urges a substantially intermediate portion (vertical portion of 91) between the driven portions disposed at the two places on the restraining member (87).

Regarding claim 8, Fig. 12 shows that the release mechanism comprises:

a release operational member (51a) that moves together with the following movable member (46);

a contact interlocking member (90) that abuts against and interlocks with the release operational member (51a); and

a coupling member (91) that is disposed between the contact interlocking member (90) and the restraining mechanism (including 86, 87 and 63) and releasably couples the restraining mechanism (including 86, 87 and 63).

Regarding claim 11, Figs. 11-12 show a guide mechanism (including 86a and 87a) by which the locus of movement of the elastic support member (42) is guided.

Regarding claim 17, Figs. 11-12 show that the sheet feeding unit (48 and 49) comprises a sheet feeding member (48) and a separating mechanism (49) that separates, one sheet at a time, the sheets fed by the sheet feeding member.

Next, the rejection of claim 9 is outlined with respect to the embodiment shown in Figs. 3, 7 and 8.

Regarding claim 9, Figs. 3, 7 and 8 show a sheet feeding device including

a sheet tray (41) on which sheets are stacked;

an elastic support member (42) that lifts up and supports, with the elastic force of an elastic member (43), the stack of sheets stacked on the sheet tray (41);

a sheet feeding unit (48 and 49) that successively feeds, beginning with the uppermost sheet, the stack of sheets lifted up by the elastic support member (42);

a following movable member (46) which is disposed so as to contact the uppermost sheet of the stack of sheets stacked on the sheet tray (41) and which follows and moves in accordance with the change in the stacking amount of the sheets;

a restraining mechanism (including 66, 67 and 63) that restrains the elastic support member (42) in accordance with the stacking amount of the sheets so that the position of the uppermost sheet of the stack of sheets stacked on the sheet tray (41) is held at a substantial constant, the restraining mechanism (including 66, 67 and 63) including an engagement member (63) that moves together with the elastic support member (42) and a restraining member (67) that restrains the movement of the engagement member (63); and

a release mechanism (including 70) that interlocks with the movement of the following movable member (46) to release the restrained state resulting from the restraining mechanism (including 66, 67 and 63);

wherein the restraining member (67) moves along a straight locus at least in the vicinity of an engaging portion between the engagement member (63) and the restraining member (67) so as to engage with and disengage from the engagement member (63).

Also, the release mechanism (including 70) comprises

a release operational member (70) that moves together with the following movable member (46);

a contact interlocking member (72) that abuts against and interlocks with the release operational member (70); and

a coupling member (including 76 and 77) that is disposed between the contact interlocking member (72) and the restraining mechanism (including 66, 67 and 63) and releasably couples the restraining mechanism (including 66, 67 and 63).

In addition, the coupling member (including 76 and 77) comprises a gear train that meshes with the driven portions (79 and 80) of the restraining mechanism, with the contact interlocking member (72) being coupled to one of the gears of the gear train.

4. Claims 1, 3-4, 8, 11 and 17, as best understood, are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,942,212 (Koh).

Regarding claim 1, Figs. 1-3 show a sheet feeding device including

a sheet tray (102) on which sheets are stacked;

an elastic support member (106) that lifts up and supports, with the elastic force of an elastic member (134), the stack of sheets stacked on the sheet tray (102);

a sheet feeding unit (column 2, lines 37-41) that successively feeds, beginning with the uppermost sheet, the stack of sheets lifted up by the elastic support member (106);

a following movable member (including 118, 122 and 126) which is disposed so as to contact the uppermost sheet of the stack of sheets stacked on the sheet tray (102)

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and which follows and moves in accordance with the change in the stacking amount of the sheets;

a restraining mechanism (including 113, 148, 136, 132, 150, 138 and 130) that restrains the elastic support member (106) in accordance with the stacking amount of the sheets so that the position of the uppermost sheet of the stack of sheets stacked on the sheet tray (102) is held at a substantial constant, the restraining mechanism (including 113, 148, 136, 132, 150, 138 and 130) including an engagement member (including 132, 150 and 138) that moves together with the elastic support member (106) and a restraining member (130) that restrains the movement of the engagement member (including 132, 150 and 138); and

a release mechanism (including 142) that interlocks with the movement of the following movable member (including 118, 122 and 126) to release the restrained state resulting from the restraining mechanism (including 113, 148, 136, 132, 150, 138 and 130);

wherein the restraining member (130) moves along a straight locus at least in the vicinity of an engaging portion between the engagement member (including 132, 150 and 138) and the restraining member (130) so as to engage with and disengage from the engagement member (i.e., element 130 engages element 132).

Regarding claim 3, Fig. 2 shows that the following movable member (including 118, 122 and 126) comprises a rotating body (118) that is rotatable.

Regarding claim 4, Fig. 1 shows that the engagement member (including 132, 150 and 138) comprises a gear (132) in which teeth are formed at least on part of a peripheral surface thereof; and

the restraining member (130) comprises a rack on which at least one tooth that meshes with the gear (132) is formed.

Regarding claim 8, Figs. 1-3 show that the release mechanism (including 142) comprises:

a release operational member (142) that moves together with the following movable member (including 118, 122 and 126);

a contact interlocking member (146) that abuts against and interlocks with the release operational member (142); and

a coupling member (116) that is disposed between the contact interlocking member (146) and the restraining mechanism (including 113, 148, 136, 132, 150, 138 and 130) and releasably couples the restraining mechanism. For example, the coupling member (116) releasably couples the restraining mechanism to the release operational member (142).

Regarding claim 11, Fig. 1 shows a guide mechanism (including 140) by which the locus of movement of the elastic support member (106) is guided.

Regarding claim 17, column 2, lines 37-41 disclose that the sheet feeding unit comprises a sheet feeding member and a separating mechanism that separates, one sheet at a time, the sheets fed by the sheet feeding member.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 7, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over the Koh patent. The Koh patent discloses the claimed invention except for the involute teeth having a pressure angle of 8 to 12 degrees. It would have been an obvious matter of design choice to make the pressure angle between 8 and 12 degrees, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

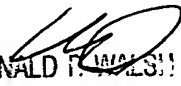
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Walsh can be reached on (571) 272-6944. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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